

REMARKS

Claims 17-56 are pending in the application. By this amendment, claims 17-20, 27-34, 37, 39, 55, and 56 are amended for clarification and/or style, and claims 35, 36, and 38 are cancelled. Applicant requests reconsideration and allowance in view of the above amendments and the following remarks.

Rejection Under 35 U.S.C. § 112

Claims 17-56 are rejected under 35 U.S.C. § 112, second paragraph, on the basis that the terms “in connection with welding” and “in connection with a welding process” are indefinite, since the connection is “unclear.” Applicant has changed the term “in connection with” to “during.” Applicant submits that this change removes any ambiguity and therefore requests that the rejection be withdrawn.

Rejection Under 35 U.S.C. § 102

Claims 17-21, 35-41, and 51-54 are rejected under 35 U.S.C. § 102(e) as anticipated by Katsuta et al., U.S. 2002/0154811 A1. Applicant traverses this rejection.

Katsuta is directed to non-destructive testing, e.g., of completed welds. Katsuta refers at paragraph [0119] to using fluorescent magnetic particles and ultraviolet light to reveal flaws where the magnetic particles will be concentrated. As such, Katsuta is inapposite to (i.e., is non-analogous art vis-à-vis) the present invention, which relates to apparatus and methodology for real-time monitoring and control of a welding process.

On a claim-by-claim basis (independent claims only), Katsuta fails to show or even suggest at least the following features:¹

Claim 17: Katsuta does not disclose means, responsive to computer image processing means, for controlling welding parameters and/or the position of a welding head;

Claim 20: Katsuta does not disclose that a weld area is illuminated with ultraviolet radiation during a welding process and that the area being welded is reproduced while it is being welded;

Claims 35 and 36: these claims are cancelled; accordingly, the rejection is moot with respect to them;

Claim 37: Katsuta does not disclose means for illuminating and means for reproducing that are positioned generally proximate a welding head during operation of the welding head; and

Claim 38: this claim is cancelled; accordingly, the rejection is moot with respect to it.

Thus, Katsuta does not anticipate the cited claims. Accordingly, Applicant requests that the rejection be withdrawn.

Rejection Under 35 U.S.C. § 103

Claims 17-21, 31-34, 37-41, 51, and 53 are rejected under 35 U.S.C. § 103(a) based on Tallman, U.S. 4,663,511. According to the Office Action, Tallman discloses all features of the claims except for a band-pass filter. However, according to the Office Action, Tallman discloses use of a polarizing filter to which, according to the Office Action, a band-pass filter would be an obvious variant. Applicant traverses this rejection.

On a claim-by-claim basis (independent claims only), Tallman fails to show or even suggest at least the following features:²

Claim 17: Tallman does not disclose 1) means, other than the welding head, for illuminating the welding area with ultraviolet radiation; 2) means, responsive to computer image processing means, for controlling welding parameters and/or the position of a welding head; or 3) a band-pass filter.

Regarding the first of these points of distinction, in total response to Applicant having made this distinction in the previous Response, the Examiner cites to figure 10 and column 10, lines 3-25 of Tallman, which, according to the Examiner, “teach a laser (16) for processing and light (146) for illumination[,]” as well as column 5, lines 45-61, which, according to the Examiner, “teach UV illumination.” The Examiner’s rebuttal is ineffectual. Tallman explains at column 5, lines 49-53 that his invention relates to a system particularly suited for viewing a workpiece while it is being irradiated or illuminated “with a particle beam such as a photon, electron or laser beam, for drilling, welding and other similar operations.” In the very next sentence, Tallman explains that by illumination or irradiation, he means “focusing or converging on an object, a source of a beam of particles which in turn include without limitation, photons in the visible, infrared or UV range, electrons, ions, lasers, and other atomic and subatomic particles.”

¹ Applicant reserves the right to distinguish Katsuta based on other features should the need arise.

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Thus, Tallman discloses the use of UV irradiation in the context of it being used to do the actual work on the workpiece, i.e., the drilling, welding, lasing, etc. With respect to another source of illumination, Tallman does disclose a supplemental light source 146 in Figure 10 and at column 10, lines 3-25. However, all Tallman says with respect to that supplemental light source is that it is “[a] high intensity light source or bulb[.]” Thus, contrary to the Examiner’s piecemeal argument, Tallman does not disclose means, other than the welding head, for illuminating the welding area with ultraviolet radiation.

Regarding the second of these points of distinction, Applicant notes that Tallman is directed to a system that allows a human operator view the workpiece while it is being worked on, such that the operator himself can adjust the process as need be. See, for example, the Background of the Invention section of Tallman (referring to “the operator’s view”) and the Summary of the Invention section of Tallman (referring repeatedly to the operator, reducing operator eye fatigue and visual discomfort, etc.). Accordingly, there is no disclosure of means, responsive to computer image processing means, for controlling welding parameters and/or the position of a welding head.

Regarding the third of these points of distinction, the Examiner asserts that “although [polarizing filters (which Tallman discloses) and band-pass filters (which Applicant recites in the claims)] work by different mechanisms both filter [sic] out particular wavelengths of light [such that the] band-pass filter and polarizing filters would be obvious variations.” Applicant explained in the previous Response the difference between polarizing filters and band-pass filters and refers the Examiner once again to that explanation. To assert that such filters are “obvious variations” overlooks or ignores fundamental operational and applicational differences between them – polarizing filters filter based on orientation of the light rays, not wavelength thereof – and Applicant firmly refutes the Examiner’s assertion.

Claim 20: Tallman does not disclose that, during the welding process, the area being welded is illuminated with UV radiation by means other than the welding head. (See discussion above.) Nor does Tallman disclose filtering using a band-pass filter. (Again, see discussion above.)

Claim 37: Tallman does not disclose means, other than the welding head, for illuminating the area being welded with UV radiation. (See discussion above.) Tallman does not disclose a band-pass filter. (See discussion above.) Tallman does not disclose means for illuminating and means for reproducing positioned generally proximate the welding head during operation thereof.

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Accordingly, given these features missing from Tallman, and the fact that Tallman does not suggest these missing features, Applicant submits that Tallman does not render obvious the claimed invention and requests that the rejection be withdrawn.

Allowable Subject Matter

Claims 22-30, 42-50, 55, and 56 are indicated to be directed to allowable subject matter if the rejections under 35 U.S.C. § 112, second paragraph, are overcome. In view of the foregoing, however, Applicants submit that all claims are in condition for allowance, and timely Notice to that effect is respectfully requested.

The undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 14-1437, Order No. 7589.204.PCUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Tracy Druce".

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